

The present invention also provides a method for producing an electron source having a plurality of electron-emitting devices, wherein said electron-emitting devices are produced by either of the above-described methods for producing the electron-emitting device.

The present invention also provides a method for producing an image-forming apparatus comprising an electron source having a plurality of electron-emitting devices and an image-forming member for forming an image under irradiation of electrons from the electron source, wherein said electron-emitting devices are produced by either of the above-described methods for producing the electron-emitting device.

15

BRIEF DESCRIPTION OF THE DRAWINGS

Figs. 1A, 1B and 1C are schematic structural diagrams ^{showing} to show a plane type surface conduction electron-emitting device as an embodiment of the electron-emitting device of the present invention;

C Figs. 2A, 2B and 2C are diagrams ^{showing} to show a method for producing an electron-emitting device of the present invention;

C Fig. 3 is a schematic plan view ^{showing} to show an electron-emitting device in Example 1 of the present invention;

C Figs. 4A and 4B are diagrams ^{showing} to show examples of

forming waveforms;

C Fig. 5 is a schematic structural diagram ^{showing} ~~to show~~ an example of ^a vacuum process apparatus according to the present invention;

C 5 Fig. 6 is a diagram ^{showing} ~~to show~~ emission current vs. device voltage characteristics (I-V characteristics) of the electron-emitting device of the present invention;

C Fig. 7 is a schematic structural diagram ^{showing} ~~to show~~ an electron source of a simple matrix configuration as 10 an embodiment of the electron source of the present invention;

Fig. 8 is a schematic structural diagram of a display panel used in an embodiment of the image-forming apparatus of the present invention

C 15 incorporating ^{an} ~~the~~ electron source ^{having a} ~~of the~~ simple matrix configuration;

C Figs. 9A and 9B are diagrams ^{showing} ~~to show~~ fluorescent films in the display panel illustrated in Fig. 8;

C Fig. 10 is a diagram ^{showing} ~~to show~~ an example of driving 20 circuitry for driving the display panel illustrated in Fig. 8;

C Fig. 11 is a schematic structural diagram ^{showing} ~~to show~~ an electron source of a ladder-like configuration as an embodiment of the electron source of the present 25 invention;

Fig. 12 is a schematic structural diagram of a display panel used in an embodiment of the image-

forming apparatus of the present invention incorporating the electron source of the ladder-like configuration;

C Fig. 13 is a schematic plan view ^{showing} to show an 5 electron source in Example 3 of the present invention; ^{section line}

C Fig. 14 is a sectional view along ^{Fig.} 14-14 in Fig. 13;

C Figs. 15A, 15B, 15C and 15D are schematic 10 sectional views ^{showing} to show production steps of the electron source in Example 3 of the present invention;

C Figs. 16E, 16F and 16G are schematic sectional ^{showing} views ^{to show} production steps of the electron source in Example 3 of the present invention;

Fig. 17 is a block diagram of an embodiment of the 15 image-forming apparatus of the present invention;

C Fig. 18 is a schematic structural diagram ^{showing} to show a conventional plane type surface conduction electron-emitting device;

Fig. 19 is a schematic diagram of an apparatus 20 used for production of the image-forming apparatus of the present invention;

C Fig. 20 is a schematic diagram ^{showing} to show an example of a connection state of each device in the forming step in production of the image-forming apparatus of 25 the present invention; and

C Fig. 21 is a schematic plan view ^{showing} to show an example of the conventional electron-emitting devices.